

Gunner's instruction

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Gunners' Instruction

1916-1917

(Gun Companies)

Supplement for
8-INCH GUN (Disappearing Carriage)

----- Company, Fort -----

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JOURNAL U. S. ARTILLERY
1916

Again this year, the JOURNAL, without mentioning them by name, expresses its grateful appreciation to the officers and men of the Corps and of the School who have rendered it valuable assistance in the preparation of text and illustrations for "Gunner's Instruction."

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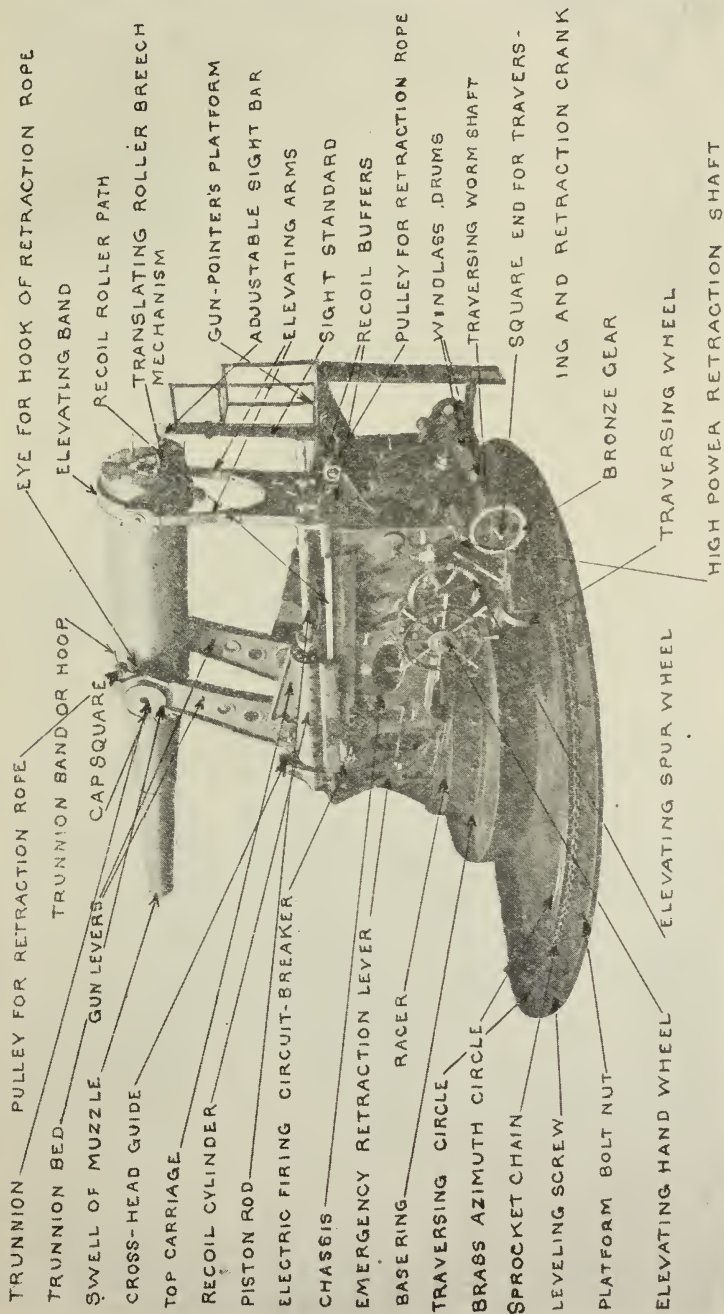
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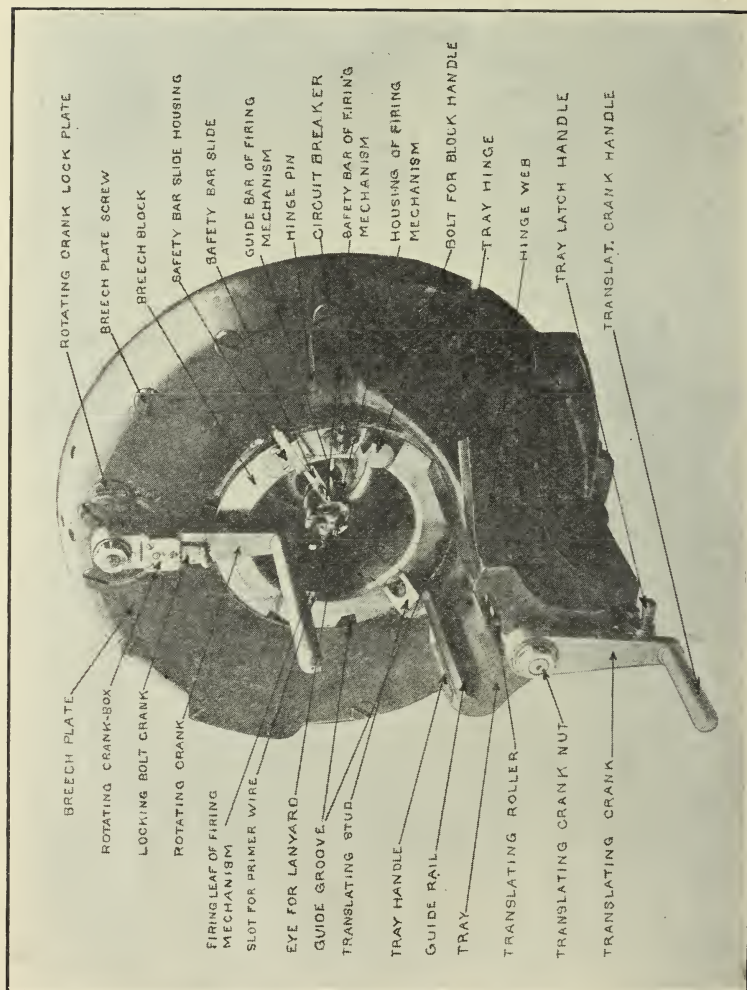
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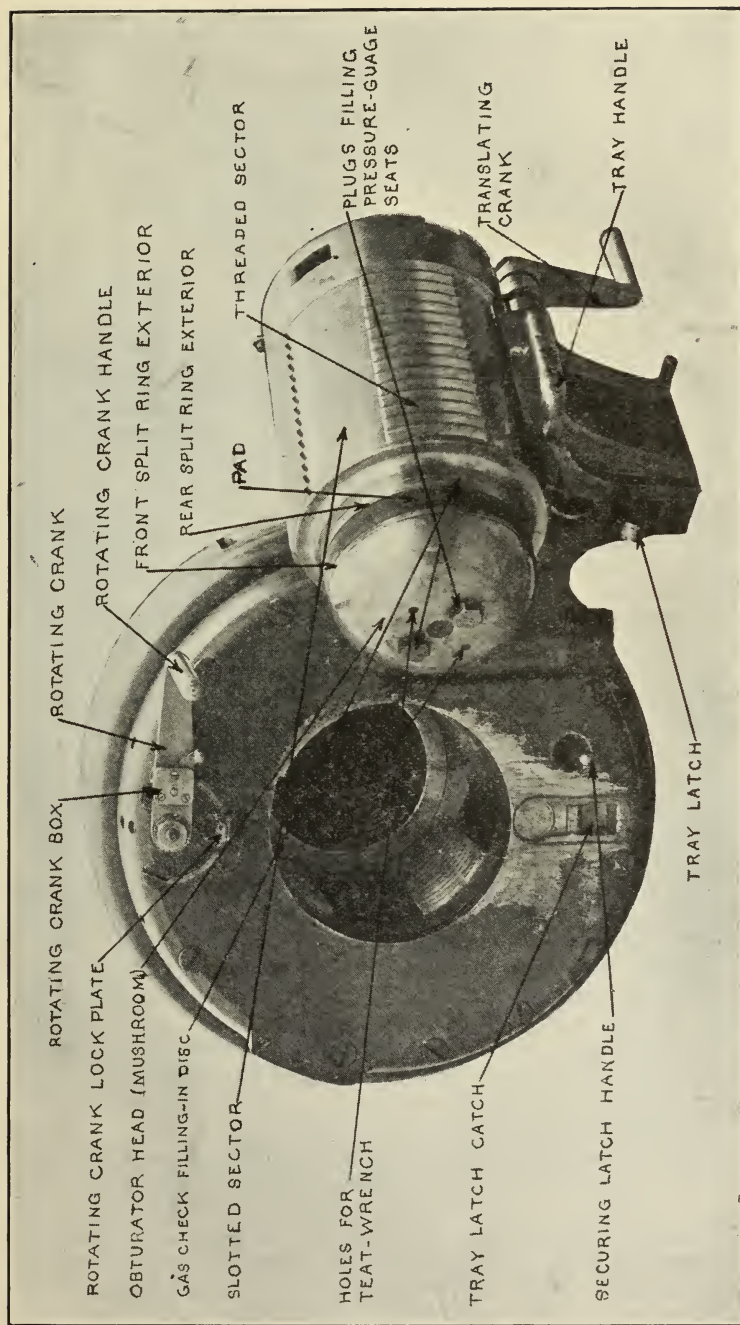


8-INCH B. L. RIFLE, MODEL 1888 M1, MOUNTED ON D. C., L. F., MODEL 1894. "IN BATTERY" (FIRING POSITION)



Department of Enlisted Specialists, C. A. S.

BREECH MECHANISM (TRANSLATING ROLLER TYPE), 10-INCH B. L. RIFLE, MODEL 1888. (CLOSED)



Department of Exalted Specialists, C. A. S.
 BREECH MECHANISM (TRANSLATING ROLLER TYPE), 10-INCH B. L. RIFLE, MODEL 1888. (OPEN)

(a) SERVICE OF THE PIECE

8-INCH GUN DRILL (DISAPPEARING CARRIAGE)

(Numbers refer to paragraphs in the 1914 Drill Regulations.)

THE GUN SECTION

148. Each emplacement is manned by a gun section (37 enlisted men plus the reserve detachment) consisting of a gun detachment, an ammunition detachment, and a reserve detachment. The gun commander is in command of the gun section, and is also chief of the gun detachment.

149. The gun detachment (26 enlisted men) consists of the gun commander, the gun pointer, the chief of breech, the range setter, the range recorder, the deflection recorder, and 20 cannoneers, numbered from 1 to 20, inclusive. The gun detachment is divided into details, as shown in the drill which follows.

150. The ammunition detachment (11 enlisted men) consists of the chief of ammunition and 10 cannoneers, numbered from 21 to 30, inclusive. The ammunition detachment is divided into details for the service of powder and projectiles according to the location of magazines, shot rooms, and hoists pertaining to the emplacement.

151. The reserve detachment consists of all unassigned cannoneers. It is divided into two reserve details, one for the gun detachment, and one for the ammunition detachment. The reserve detachment is posted by the gun commander at some convenient place or places, and is used by him to fill vacancies in the other detachments.

152. *To post the gun section.*—The section is posted as prescribed in detail in Par. 40. The gun commander commands *DETAILS, POSTS*, and after the cannoneers are posted, he commands *EXAMINE GUN*.

153. *To call off.*—The battery commander may at any time give the command *CALL OFF*, which is repeated by the gun commander. The cannoneers call off their numbers, beginning at one.

154. *To load and fire.*—The battery commander indicates the target, as prescribed in Chapter V. He designates the kind of projectile to be used, and after tracking has begun, commands:

(a) *COMMENCE FIRING.*

(b) *FIRE—ROUNDS, COMMENCE FIRING.*

(c) *NUMBER (S)—FIRE—SHOTS, COMMENCE FIRING.*

The gun commander commands *LOAD* when the battery commander gives the command *COMMENCE FIRING*, and before each shot of a series.

The battery commander may give the command *LOAD*, in which case the gun commander repeats the command. The piece is loaded, but is held from battery until the battery commander commands *COMMENCE FIRING*.

When the number of rounds specified has been fired, the gun commander commands *CEASE FIRING*, at which command all cannoneers resume their posts.

When the number of rounds is not specified, the battery commander commands *CEASE FIRING*, and the gun commander repeats the command.

155. When dummy ammunition is used, the piece is unloaded at the command *CEASE FIRING*, unless otherwise ordered.

156. The following drill [page 3] is prescribed:

NOTES ON THE DRILL

137. The service of the piece as given above is for a gun with an 1895 breech mechanism. If the gun has an 1888 breech mechanism, the duties of the breech detail differ in the following respects: No. 1 assists in opening the breechblock, oils the threads, and assists in closing the breech.

138. *To open breech, model 1888 mechanism.*—No. 2 releases the rotating crank by turning the wing nut of the catch to the left and then turns the rotating crank clockwise, as indicated by the "open arrow," until it brings up short in a horizontal position and is secured by its catch; No. 1 turns the translating crank briskly contraclockwise. When the shoulders of the grooves strike against the ends of the rails, the block stops short and the shock frees the tray latch from its catch; No. 1 swings the tray and block to the right until the securing latch engages in the catch.

139. *To close breech, model 1888 mechanism.*—No. 2 releases the securing latch from its catch; No. 1 swings the tray and block around to the left smartly; No. 2 seizes the handle of the tray and continues the swinging of the block until the tray abuts against and is latched to the face of the breech; then he turns the translating crank clockwise until the breech is translated completely; No. 1 releases the rotating crank by turning the wing nut and turns the rotating crank contraclockwise, as indicated by the "close" arrow, until it brings up short in a vertical position and is secured by its catch.

140. *To open breech, model 1895 mechanism.*—The chief of breech unhooks the lanyard (when one is used) from the eye of the firing leaf; No. 3 turns the crank continuously in a clockwise direction until the tray comes to a rest against the hinge plate and the securing latch catches.

141. *To close breech, model 1895 mechanism.*—No. 1 releases the securing latch and turns the crank in a contraclockwise direction until the projecting shoulder on the rotating lug striking the gear prevents further motion. The latch is released before the truck is withdrawn from the breech, holding the breechblock open by the operating crank until time to close it.

142. With the 1895 breech mechanism, it will be convenient to fasten a wire around the piece back of the elevating band with a loop in which the safety lanyard (if a lanyard is used) may be hooked during the loading. The chief of breech after unhooking the lanyard swings it over the teeth of the breech mechanism and hooks it in the loop of the wire. Thus it is kept from being caught in the mechanism and is convenient to the chief of breech when the time comes to hook it again.

143. Prior to practice or action shot trucks are adjusted to the highest point to which it is anticipated the gun will recoil, since the adjustment is made downward more easily and rapidly than upward.

144. If the gun fails to go in battery completely, the gun commander orders Nos. 9 and 10 to use the pinch bars; these are engaged in the notches on the chassis and the gun is forced into battery. However, battery com-

8-INCH GUN DRILL (DISAPPEARING CARRIAGE)

Details.	At command <i>DETAILS POSTS.</i>	At command <i>EXAMINE GUN.</i>
Gun commander (N. C. officer).	The gun commander gives the command <i>DETAILS, POSTS</i> and supervises the procuring of equipments and implements. He posts the reserve detachment.	The gun commander gives the command <i>EXAMINE GUN</i> , makes a general inspection of the gun, and carriage and reports to the emplacement officer.
Gun pointer (N. C. officer or private).	The gun pointer procures the sight and places it in its seat and takes post on the sighting platform.	The gun pointer examines the sight and verifies the adjustment of the azimuth index. He examines the traversing mechanism and the electric firing mechanism and circuit (if used).
Range setter (N. C. officer or private).	The range setter takes post facing the range scale.	The range setter examines the elevating and retracting mechanisms. He cleans and oils the gears.
Range recorder (N. C. officer or private).	The range recorder procures chalk, a ruler, a blackboard eraser, and a stop watch and takes post at the time-range board.	The range recorder examines the time-range board. He puts on the head set and tests the telephone to the plotting room.
Deflection recorder (N. C. officer or private).	The deflection recorder procures chalk and a blackboard eraser, and takes post at the deflection recorder's board.	The deflection recorder examines the deflection recorder's board. He puts on the head set, and tests the telephone to the plotting room.
Breech detail, chief of breech (N. C. officer or private), and Nos. 1, 2, and 3.	<p>The chief of breech takes post 2 yards in rear of the breech, facing it.</p> <p>No. 1 procures a wiper or cotton waste and a can containing lubricating oil and a sponge. He places the can convenient to the breech and takes post about 1 yard to the rear and right of the breech, facing it.</p> <p>No. 2 procures the operating crank for the breech mechanism and places it in position. He also procures a wiper or cotton waste and takes post about 1 yard to the rear and left of the breech, facing it.</p> <p>No. 3 procures the lanyard (when one is used), primers, primer pouch, punch, drill, reamer, and firing mechanism, and takes post on the right side of the piece, about 1 foot to the right and front of the elevating band, facing to the rear.</p>	<p>The chief of breech examines the breech mechanism, breechblock, breech recess, chamber, and bore, and gives the necessary orders for cleaning and putting them into condition for service.</p> <p>No. 1 removes the breech cover and places it at the designated place. He cleans and oils the breechblock and breech mechanism.</p> <p>No. 2 cleans and oils the breech recess and gas-check seat.</p> <p>No. 3 examines the vent and the firing mechanism. He clears the vent and cleans the primer seat. He coils the long lanyard (if one is used) and hangs it over the end of the elevating arm.</p>
Rammer detail, No. 4.	No. 4 procures the rammer and places it on its hooks near the rail, head toward the hoist. He procures the extractor for the dummy projectile and places it near the rammer. He takes post about 2 yards from the head of the rammer, within reach of the staff, facing the piece.	No. 4 assists the breech detail in cleaning when necessary.

At command <i>LOAD</i> .	At command <i>CEASE FIRING</i> . (When dummy ammunition is used.)
The gun commander gives the command <i>LOAD</i> and supervises the work of his section. After the chief of breech has given the command <i>TRIP</i> , the gun commander sees that the gun goes fully into battery, verifies the range setting, and if the setting is correct, calls <i>READY</i> .	The gun commander gives the command <i>CEASE FIRING</i> , and supervises the work of unloading.
The gun pointer sets the deflection recorded on the deflection recorder's board and directs the traversing so that he will be on the target by the time the gun is in battery. He fires the piece or gives the command <i>FIRE</i> as soon after the command <i>READY</i> as the piece is pointed.	No duties.
At the command <i>TRIP</i> the range setter lays the piece for range in accordance with information obtained from the time-range board as prescribed in Paragraph 400.	No duties.
The range recorder continues plotting the time-range curve, as prescribed in Paragraph 400.	The range recorder continues plotting the time-range curve.
The deflection recorder makes a record of the last deflection received when it differs from the last one recorded, erasing the latter.	The deflection recorder continues recording deflections.
<p>The chief of breech gives the command <i>HOME RAM</i> for ramming the projectile, and the command <i>IN BATTERY TRIP</i> for tripping the gun. If a lanyard is used, he hooks the lanyard before the primer is inserted, and does not command <i>TRIP</i> until after the primer is inserted. After firing he unhooks the lanyard.</p> <p>Nos. 1 and 2 open the breech.</p> <p>No. 1 places the head of the rammer against the base of the projectile as the truck approaches the breech, assists in ramming the projectile, and closes breech, assisted by No. 2.</p> <p>After each shot No. 2 wipes the mushroom head and gas-check seat with a cloth moistened with hydrolene oil, then takes his place on the rammer, assists in ramming the projectile, and assists No. 1 in closing the breech.</p> <p>No. 3 inserts a primer after the breechblock is completely closed and lowers the leaf of the firing device <i>completely down</i>, steps back to the right and rear as the gun goes in battery, letting his lanyard (if one is used) uncoil. He pulls the lanyard (if one is used) at the command <i>FIRE</i>. After the piece is fired he coils the long lanyard (if a lanyard is used), and as soon as the breech is opened removes the old primer, clears the vent, and cleans the primer seat.</p> <p><i>Note</i>—(The battery commander may require Nos. 1 and 2 to assist in ramming the powder, and the chief of breech to assist in ramming the projectile.)</p>	<p>The chief of breech supervises unloading. Nos. 1 and 2 assist in withdrawing the dummy powder charge and the dummy projectile. No. 3 removes the primer.</p>
<p>The truck is brought up to the face of the breech and the projectile pushed carefully off the truck until the base of the projectile is just inside the powder chamber. The truck is then withdrawn and run off to one side. Nos. 1, 2, 4, 9, and 10 then man the rammer as near the outer end as possible, and at the command <i>HOME RAM</i> by the chief of breech they rush the projectile forward hard into its seat, increasing the speed of the rush so that the projectile will have its fastest movement when it comes up hard in its seat. The rammer detail pushes the powder off the powder tray and into the powder chamber to such a distance that the breechblock will give the powder charge a final push into the chamber in closing.</p> <p><i>Note</i>—(The battery commander may require Nos. 1 and 2 to assist in ramming the powder, and the chief of breech to assist in ramming the projectile.)</p>	No. 4 brings up the extractor and pulls the dummy powder sections back onto the powder tray. He hooks the extractor into the dummy projectile and assists in withdrawing it.

8-INCH GUN DRILL (DISAPPEARING CARRIAGE)

Details.	At command <i>DETAILS,</i> <i>POSTS.</i>	At command <i>EXAMINE</i> <i>GUN.</i>
Elevating detail, Nos. 5 and 6.	Nos. 5 and 6 take posts at the elevating handwheel on the same side as the range setter, facing the piece.	Nos. 5 and 6 assist the range setter in examining the elevating and retracting mechanism and in cleaning and oiling the gears.
Traversing detail, Nos. 7 and 8.	Nos. 7 and 8 procure the traversing cranks, place one of them on the shaft on the same side as the gun pointer, and take posts at the crank, facing to the rear.	Nos. 7 and 8 remove the drip pans and test the traversing mechanism. No. 8 receives the muzzle cover from No. 11 and places it at a designated place.
Tripping detail, Nos. 9 and 10.	No. 9 procures a wrench for filling plugs, a measure containing hydrolene oil, and a funnel, and goes to the right tripping lever. No. 10 procures a wrench for filling plugs and goes to the left tripping lever.	Nos. 9 and 10 mount on the chassis, each carrying a wrench, and remove the filling plugs from the recoil cylinders. If oil is needed, No. 9 calls on No. 11 for the funnel and measure and pours oil into the right cylinder slowly. No. 10 watches the oil hole in the left cylinder. When both cylinders are full, No. 9 hands the funnel and measure back to No. 11 and notifies the gun commander that the cylinders are ready for inspection. After the inspection, Nos. 9 and 10 screw the plugs well home and take posts, facing the piece, by the platform railing, No. 9 one yard to the right of No. 4 and No. 10 one yard to the left of No. 4.
Truck detail, Nos. 11 and 12.	Nos. 11 and 12 bring out the shot trucks to be used and take posts at the handles of one of the trucks; No. 11 on the right and No. 12 on the left.	No. 11 removes the muzzle cover, hands it to No. 8, and assists No. 9 in filling the recoil cylinders, passing up the oil measure and the funnel when needed. Nos. 11 and 12 examine the trucks, clean and oil them when necessary. They then turn them over to the hoist detail for loading. When the first truck is loaded, they push it out to some convenient position in rear of the breach.
Powder serving detail, Nos. 13, 14, 15, and 16.	Nos. 13, 14, 15, and 16 bring out the powder trays to be used and turn them over to the ammunition detachment. They take posts opposite the first tray, loaded, Nos. 13 and 15 on the right and Nos. 14 and 16 on the left, Nos. 13 and 14 in rear.	Nos. 13, 14, 15, and 16 see that the powder sections are arranged on the trays in the order in which they are to be inserted.
Hoist detail, Nos. 17, 18, and 19. No. 17 is chief of detail unless a noncom- missioned officer is assigned in charge.	Nos. 17, 18, and 19 take posts at the delivery table.	Nos. 17, 18, and 19 examine and clean the delivery table and the projectiles on it. They examine the automatic stop. They load the trucks turned over to them by the truck detail.
Sponge detail, No. 20.	No. 20 procures the chamber sponge and a vessel containing hydrolene oil, places them near the railing on the opposite side of the emplacement from the rammer, and takes post near the chamber sponge, facing the gun. (If there is to be no firing, the vessel may be empty.)	No. 20 brings up the chamber sponge when called for and assists in sponging the chamber.

At command <i>LOAD</i> .	At command <i>CEASE FIRING</i> . (When dummy ammunition is used.)
Nos. 5 and 6 elevate or depress the piece under direction of the range setter.	No duties.
Nos. 7 and 8 traverse the piece under direction of the gun pointer. They halt when the piece is fired and resume traversing as soon as the truck is withdrawn from the breech.	No duties.
Nos. 9 and 10 assist in ramming the projectile. As soon as the projectile is seated they quit the rammer and run to the tripping levers. At the command <i>IN BATTERY</i> they seize the tripping levers, and at the command <i>TRIP</i> , raise them quickly to the stops, hold them for an instant, then let go, and when the gun is in battery run back to their posts at the rammer, where they stand by for the next shot. If firing by electricity, No. 9 (or 10) closes the safety switch as soon as the gun is in battery.	No duties unless the dummy projectile sticks, in which case they assist in starting it from its seat.
Nos. 11 and 12 run out a loaded shot truck, No. 12 adjusting the truck to the proper height in accordance with the position of the piece upon recoil. The truck is run forward so that the tray enters the breech recess squarely. As the truck brings up against the face of the breech No. 12 sets the brake. As soon as the projectile is pushed off the truck Nos. 11 and 12 run the truck back to the hoist, and turn it over to the hoist detail. Then they take posts behind a loaded truck and stand by for the next shot.	Nos. 11 and 12 push a truck into position at the breech to receive the dummy projectile, then return the truck to the loading position.
As soon as the rammer has been withdrawn after seating the projectile, the nose of the powder tray is inserted in the breech by Nos. 13, 14, 15, and 16, and the rammer detail, in one motion, pushes carefully the entire powder charge off the tray to such a distance that the breechblock will give the powder charge a final push into the chamber in closing. The tray is then removed and the breech closed.	Nos. 13, 14, 15, and 16 bring up an empty powder tray to receive the dummy powder sections, and return the loaded tray to the loading position.
Nos. 17, 18, and 19 receive the empty truck after each shot, load it, and run it out conveniently for Nos. 11 and 12.	No duties.
No. 20 dips the chamber sponge in the hydrolene oil and allows the excess oil to run off. As soon as the breechblock is opened after each shot, assisted by the breech detail, he sponges the chamber as quickly as practicable.	No duties.

manders will observe such defects at daily drill and will have the same remedied before practice or action.

145. *To retract the gun.*—Assuming that the gun is in battery, that the clutch is out, and that the cables are wound on the retraction drums, to retract the gun by hand the gun commander will command (1) *FROM BATTERY*, (2) *HEAVE*, (3) *HALT*. At the first command No. 7 releases the retaining pawl and turns the speed crank to permit the pulling out of the cables. Nos. 1 and 2 pull out the cables to their full length and pass the ends to Nos. 3 and 4, who will have mounted on the chassis. Nos. 3 and 4 pass the cables to Nos. 9 and 10, who will have mounted the gun levers, and who will place the ends of the cables on the hooks. No. 7 will then throw on the retaining pawl and will turn the speed crank to take up all slack, and No. 8 will push in the clutch, Nos. 3 and 4 watching the cables to see that they take the grooves of the drums. As soon as the slack has been taken up Nos. 3, 4, 9, and 10 return to the loading platform, and Nos. 7 and 8 put on the retraction cranks.

The gun section is divided into two reliefs by the gun commander. The first relief takes post at the retraction cranks, and at the second command start to retract the gun. The reliefs alternate as directed by the gun commander. As soon as the crosshead teeth engage their pawls the retraction shaft retaining pawl is thrown off, and remains off until the cables have been unhooked from the gun levers.

When the gun has reached the loading position, the gun commander commands *HALT*. At this command Nos. 7 and 8 remove the retraction cranks. No. 7, using the speed crank, lets out enough slack to enable Nos. 1 and 2 to unhook the cables. After the unhooking, No. 7 takes up all slack with the speed crank and then throws the retaining pawl on. No. 8 then pulls out the clutch.

146. For retraction by power the above drill is modified as follows: Assuming the idler to be out of gear, after the cables have been hooked to the gun levers, and the slack has been taken up by No. 7 and the clutch thrown in by No. 8, at the command *HEAVE* by the gun commander No. 8 throws the idler in gear. As soon as this is done the range setter closes the main switch of the controller cabinet and moves the arm so as to turn on the power. The movements at the command *HALT* are the same as those prescribed for hand retraction, except that the range setter pulls the main switch of the controller cabinet, after which No. 8 throws the idler out of gear. The cables are then unhooked, and the slack taken up as prescribed for hand retraction.

147. On carriages equipped with friction brakes on the retraction crank shaft it is not necessary to unhook the cables from the gun levers. The time consumed in pulling out and hooking the cables is thereby saved. On carriages so equipped the cables need not be unhooked, and the drill may be modified accordingly.

Gunners' Instruction

1916-1917

(Gun Companies)

Supplement for
12-INCH GUN (Disappearing Carriage)

----- Company, Fort -----

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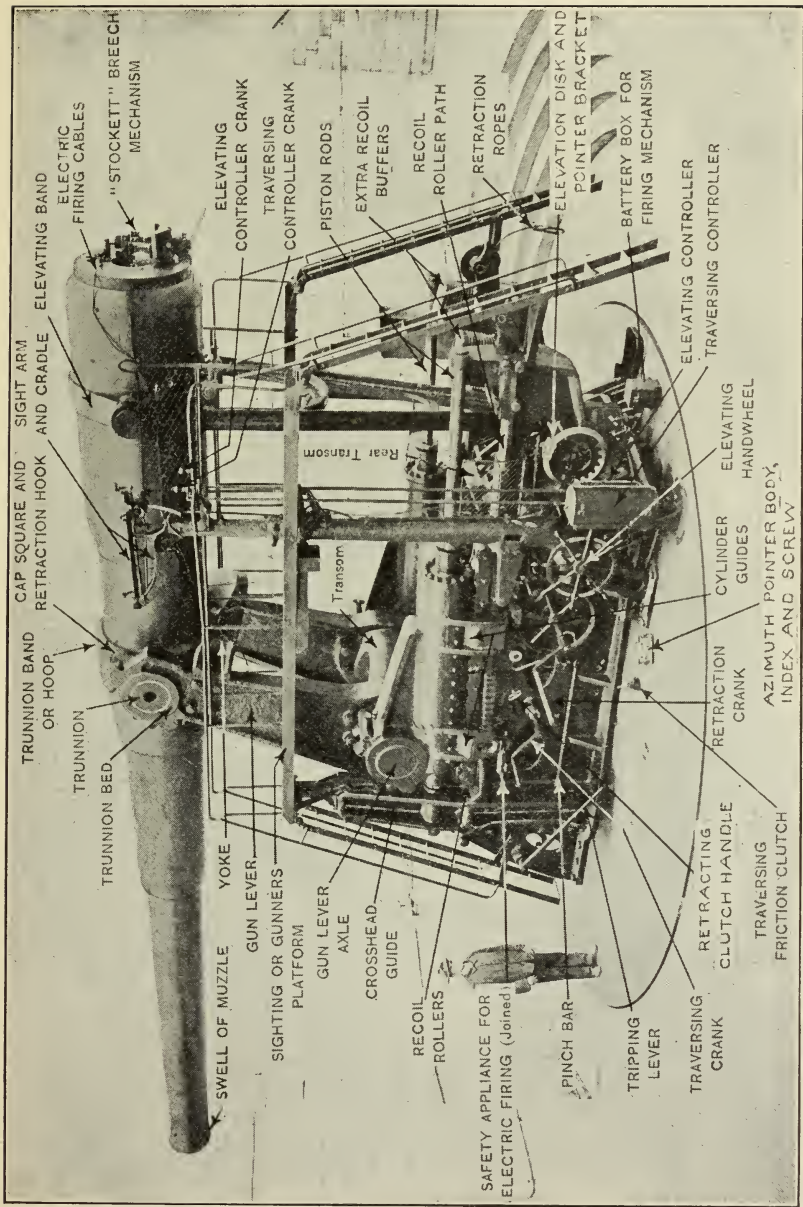
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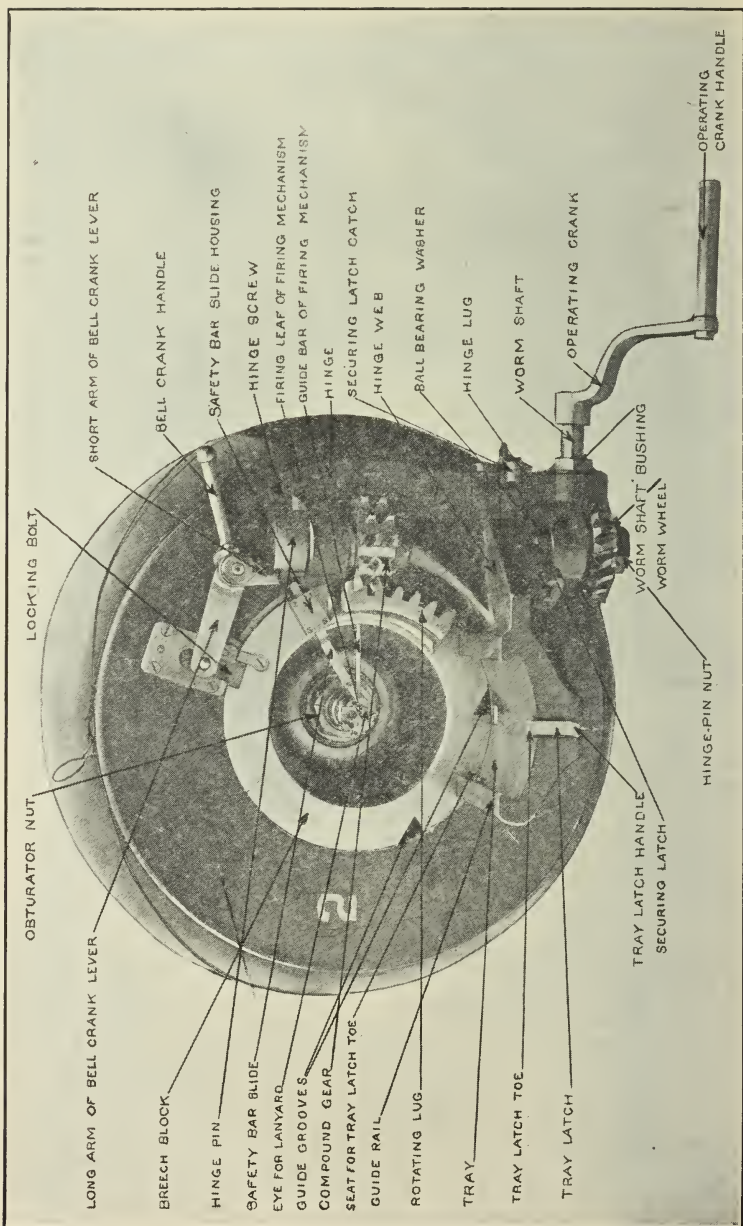
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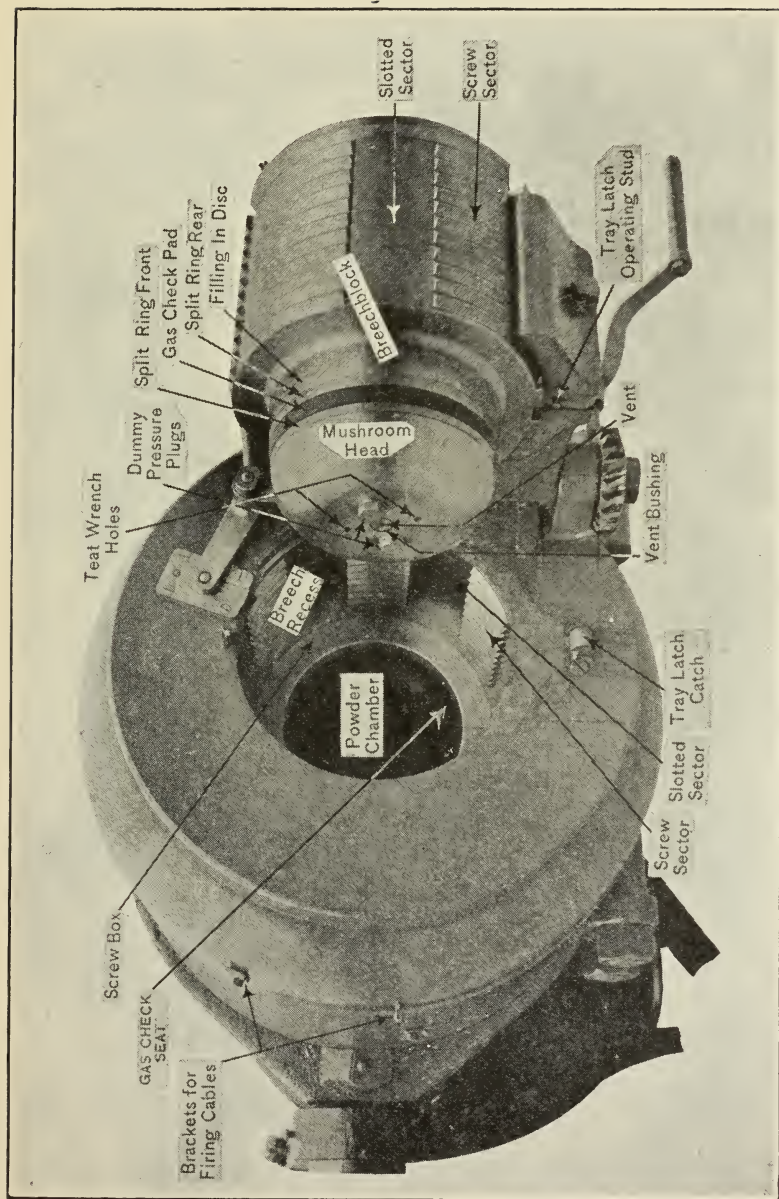
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12-INCH B. L. RIFLE, MODEL 1900, MOUNTED ON D. C., L. F., MODEL 1901. "IN BATTERY" (FIRING POSITION)



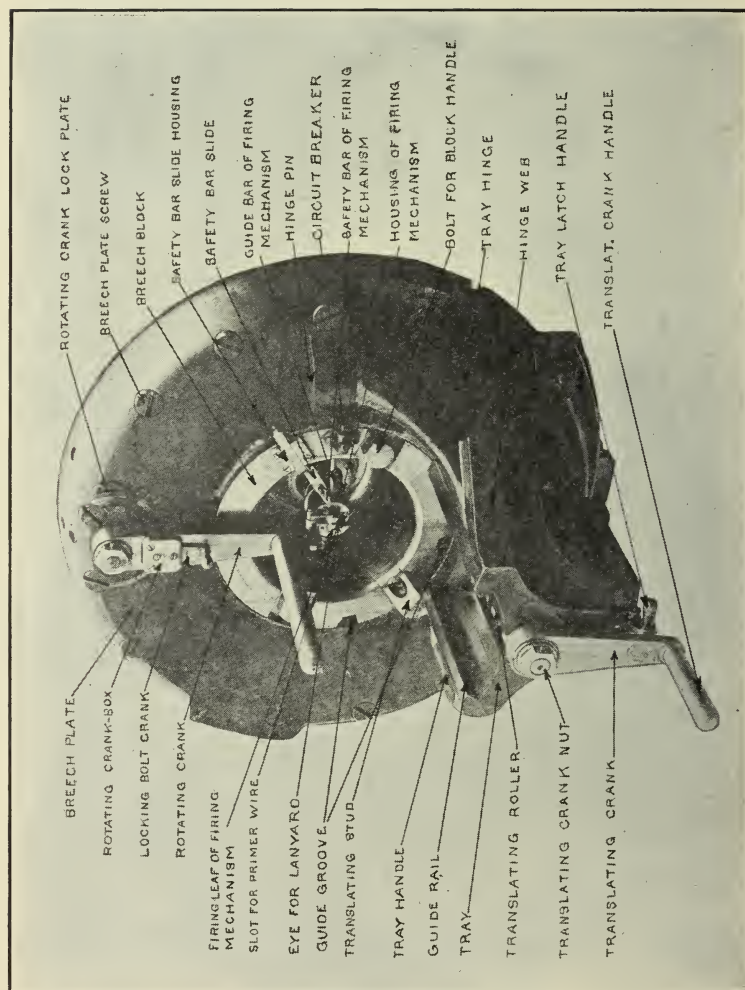
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BREECH MECHANISM, (STOCKETT), 12-INCH B. L. RIFLE, MODEL 1900. (CLOSED)



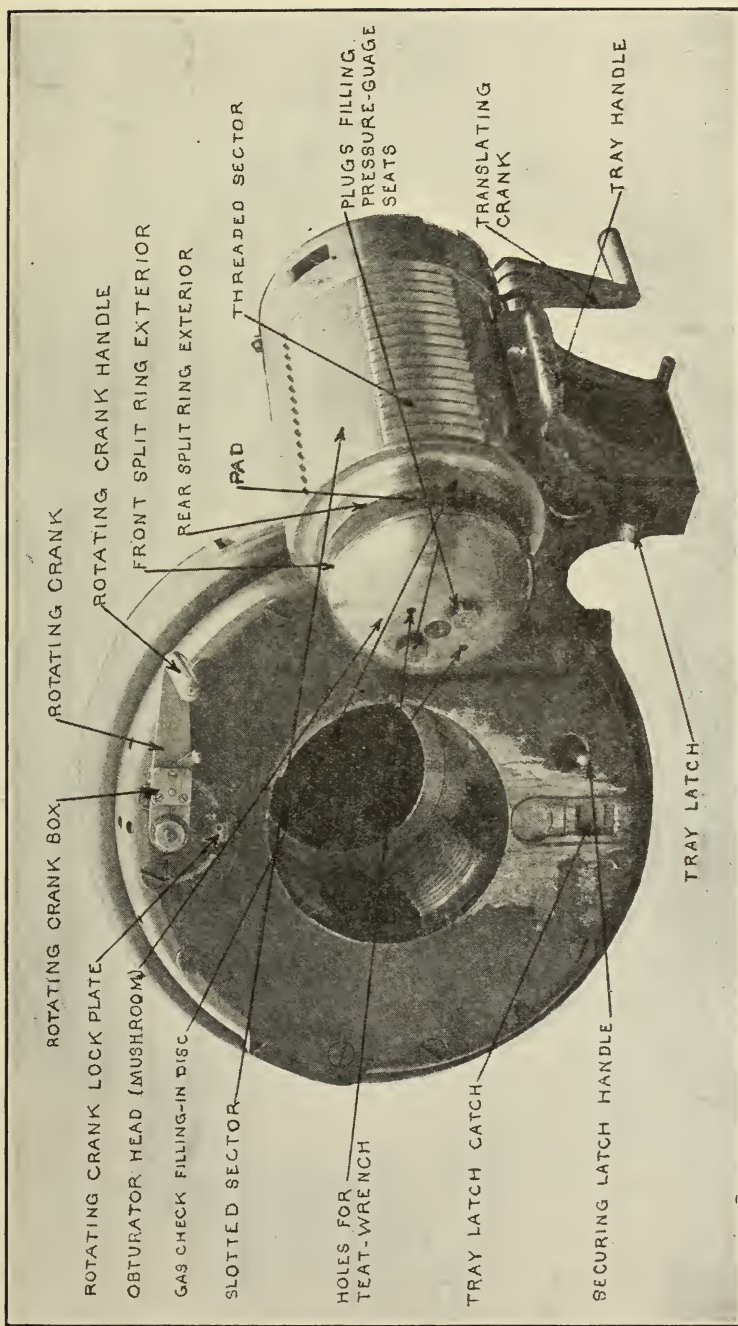
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BREECH MECHANISM, (STOCKETT), 12-INCH B. L. RIFLE, MODEL 1900. (OPEN)



Department of Enlisted Specialists, C. A. S.

BREECH MECHANISM (TRANSLATING ROLLER TYPE), 10-INCH B. L. RIFLE, MODEL 1888. (CLOSED)



Department of Enlisted Specialists, C. A. S.
 BREECH MECHANISM (TRANSLATING ROLLER TYPE), 10-INCH B. L. RIFLE, MODEL 1888. (OPEN)

(a) SERVICE OF THE PIECE

12-INCH GUN DRILL (DISAPPEARING CARRIAGE)

(Numbers refer to paragraphs in the 1914 Drill Regulations.)

THE GUN SECTION

128. Each emplacement is manned by a gun section (42 enlisted men plus the reserve detachment), consisting of a gun detachment, an ammunition detachment, and a reserve detachment. The gun commander is in command of the gun section, and is also chief of the gun detachment.

129. The gun detachment (29 enlisted men) consists of the gun commander, the gun pointer, the chief of breech, the range setter, the range recorder, the deflection recorder, and 23 cannoneers, numbered from 1 to 23, inclusive. The gun detachment is divided into details, as shown in the drill which follows.

130. The ammunition detachment (13 enlisted men) consists of the chief of ammunition and 12 cannoneers, numbered from 24 to 35, inclusive. The ammunition detachment is divided into details for the service of powder and projectiles, according to the location of magazines, shot rooms, and hoists pertaining to the emplacement.

131. The reserve detachment consists of all unassigned cannoneers. It is divided into two reserve details, one for the gun detachment, and one for the ammunition detachment. The reserve detachment is posted by the gun commander at some convenient place or places, and is used by him to fill vacancies in the other detachments.

132. *To post the gun section.*—The section is posted as prescribed in detail in Par. 40. The gun commander commands *DETAILS, POSTS*, and after the cannoneers are posted, he commands *EXAMINE GUN*.

133. *To call off.*—The battery commander may at any time give the command *CALL OFF*, which is repeated by the gun commander. The cannoneers call off their numbers, beginning at one.

134. *To load and fire.*—The battery commander indicates the target, as prescribed in Chapter V. He designates the kind of projectile to be used, and after tracking has begun, commands:

(a) *COMMENCE FIRING.*

(b) *FIRE—ROUNDS, COMMENCE FIRING.*

(c) *NUMBER (S)—FIRE—SHOTS, COMMENCE FIRING.*

The gun commander commands *LOAD* when the battery commander gives the command *COMMENCE FIRING*, and before each shot of a series.

The battery commander may give the command *LOAD*, in which case the gun commander repeats the command. The piece is loaded, but is held from battery until the battery commander commands *COMMENCE FIRING*.

When the number of rounds specified has been fired, the gun commander commands *CEASE FIRING*, at which command all cannoneers resume their posts.

When the number of rounds is not specified, the battery commander commands *CEASE FIRING*, and the gun commander repeats the command.

135. When dummy ammunition is used, the piece is unloaded at the command *CEASE FIRING*, unless otherwise ordered.

136. The following drill [page 3] is prescribed:

NOTES ON THE DRILL

137. The service of the piece as given above for a gun with an 1895 breech mechanism. If the gun has an 1888 breech mechanism, the duties of the breech detail differ in the following respects: No. 1 assists in opening the breechblock, oils the threads, and assists in closing the breech; No. 21 assists on the translating crank, if necessary.

138. *To open breech, model 1888 mechanism.*—No. 2 releases the rotating crank by turning the wing nut of the catch to the left and then turns the rotating crank clockwise, as indicated by the “open” arrow, until it brings up short in a horizontal position and is secured by its catch; No. 1 turns the translating crank briskly contraclockwise. When the shoulders of the grooves strike against the ends of the rails, the block stops short and the shock frees the tray latch from its catch; No. 1 swings the tray and block to the right until the securing latch engages in the catch.

139. *To close breech, model 1888 mechanism.*—No. 2 releases the securing latch from its catch; No. 1 swings the tray and block around to the left smartly; No. 2 seizes the handle of the tray and continues the swinging of the block until the tray abuts against and is latched to the face of the breech; then he turns the translating crank clockwise until the breech is translated completely; No. 1 releases the rotating crank by turning the wing nut and turns the rotating crank contraclockwise, as indicated by the “close” arrow, until it brings up short in a vertical position and is secured by its catch.

140. *To open breech, model 1895 mechanism.*—The chief of breech unhooks the lanyard (when one is used) from the eye of the firing leaf; No. 21 turns the crank continuously in a clockwise direction until the tray comes to a rest against the hinge plate and the securing latch catches.

141. *To close breech, model 1895 mechanism.*—No. 1 releases the securing latch and turns the crank in a contraclockwise direction until the projecting shoulder on the rotating lug striking the gear prevents further motion. The latch is released before the truck is withdrawn from the breech, holding the breechblock open by the operating crank until time to close it.

142. With the 1895 breech mechanism, it will be convenient to fasten a wire around the piece back of the elevating band with a loop in which the safety lanyard (if a lanyard is used) may be hooked during the loading. The chief of breech after unhooking the lanyard swings it over the teeth of the breech mechanism and hooks it in the loop of the wire. Thus it is kept from being caught in the mechanism and is convenient to the chief of breech when the time comes to hook it again.

143. Prior to practice or action shot trucks are adjusted to the highest point to which it is anticipated the gun will recoil, since the adjustment is made downward more easily and rapidly than upward.

144. If the gun fails to go in battery completely, the gun commander orders Nos. 9, 10, 22 and 23 to use the pinch bars; these are engaged in the

12-INCH GUN DRILL (DISAPPEARING CARRIAGE)

Details.	At command <i>DETAILS, POSTS.</i>	At command <i>EXAMINE GUN.</i>
Gun commander (N. C. officer).	The gun commander gives the command <i>DETAILS, POSTS</i> , and supervises the procuring of equipment and implements. He posts the reserve detachment.	The gun commander gives the command <i>EXAMINE GUN</i> , makes a general inspection of the gun and carriage, and reports to the emplacement officer.
Gun pointer (N. C. officer or private).	The gun pointer procures the sight, places it in its seat, and takes post on the sighting platform.	The gun pointer examines the sight and verifies the adjustment of the azimuth index. He examines the traversing mechanism and the electric firing mechanism and circuit (if used).
Range setter (N. C. officer or private).	The range setter takes post facing the range scale.	The range setter examines the elevating and retracting mechanisms, and cleans and oils the gears if necessary.
Range recorder (N. C. officer or private).	The range recorder procures chalk, a ruler, a blackboard eraser, and a stop watch, and takes post at the time-range board.	The range recorder examines the time-range board. He puts on the head set and tests the telephone to the plotting room.
Deflection recorder (N. C. officer or private).	The deflection recorder procures chalk, and a blackboard eraser, and takes post at the deflection recorder's board.	The deflection recorder examines the deflection recorder's board. He puts on the head set, and tests the telephone to the plotting room.
Breech detail. chief of breech (N. C. officer or private), and Nos. 1, 2, 3, and 21.	<p>The chief of breech takes post 2 yards in rear of the breech, facing it.</p> <p>No. 1 procures a wiper or cotton waste and a can containing lubricating oil and a sponge. He places the can convenient to the breech and takes post about one yard to the rear and right of the breech, facing it.</p> <p>No. 2 procures the operating crank for the breech mechanism and places it in position. He also procures a wiper or cotton waste and takes post about one yard to the rear and left of the breech, facing it.</p> <p>No. 3 procures the lanyard (if one is used), primers, primer pouch, punch, drill, reamer, and firing mechanism, and takes post on the right side of the piece about one foot to the right and front of the elevating band, facing to the rear.</p> <p>No. 21 takes post about 2 feet to the right of the breech on line with its face, facing it.</p>	<p>The chief of breech examines the breech mechanism, breechblock, breech recess, chamber, and bore, and gives the necessary orders for cleaning and putting them into condition for service.</p> <p>Nos. 1 and 21 remove the breech cover and place it at the designated place. They clean and oil the breechblock and breech mechanism.</p> <p>No. 2 cleans and oils the breech recess and gas-check seat.</p> <p>No. 3 examines the vent and the firing mechanism. He clears the vent and cleans the primer seat. He coils the long lanyard (if one is used) and hangs it over the end of the elevating arm.</p>

At command <i>LOAD</i> .	At command <i>CEASE FIRING</i> . (When dummy ammunition is used.)
<p>The gun commander gives the command <i>LOAD</i> and supervises the work of his section. After the chief of breech has given the command <i>TRIP</i>, the gun commander sees that the gun goes fully into battery, verifies the range setting, and if the setting is correct, calls <i>READY</i>.</p>	<p>The gun commander gives the command <i>CEASE FIRING</i> and supervises the work of unloading.</p>
<p>The gun pointer sets the deflection recorded on the deflection-recorder's board and directs the traversing so that he will be on the target by the time the gun is in battery. He fires the piece or gives the command <i>FIRE</i> as soon after the command <i>READY</i> as the piece is pointed.</p>	<p>No duties.</p>
<p>At the command <i>TRIP</i> the range setter lays the piece for range in accordance with information obtained from the time-range board, as described in Par. 400. *</p>	<p>No duties.</p>
<p>The range recorder continues plotting the time-range curve as prescribed in Par. 400.</p>	<p>The range recorder continues plotting the time-range curve.</p>
<p>The deflection recorder makes a record of the last deflection received when it differs from the last one recorded, erasing the latter.</p>	<p>The deflection recorder continues recording deflections.</p>
<p>The chief of breech gives the command <i>HOME RAM</i> for ramming the projectile, and the command <i>IN BATTERY, TRIP</i> for tripping the gun. If a lanyard is used, he hooks the lanyard before the primer is inserted, and does not command <i>TRIP</i> until after the primer is inserted. After firing, he unhooks the lanyard. No. 1 places the head of the rammer against the base of the projectile as the truck approaches the breech, assists in ramming the projectile, closes breech, assisted by No. 2, and goes to his place on the rammer and stands by for the next shot. After each shot, No. 2 wipes the mushroom head and gas-check seat with a cloth moistened with hydrolene oil, then takes his place on the rammer, assists in ramming the projectile and assists No. 1 in closing breech. No. 3 inserts a primer after the breechblock is completely closed and lowers the leaf of the firing device <i>completely down</i>, steps back to the rear as the gun goes in battery, letting his lanyard (if one is used) uncoil, and pulls the lanyard (if one is used) at the command <i>FIRE</i>. After the piece is fired he coils the long lanyard (if a lanyard is used) and as soon as the breech is opened removes the old primer, clears the vent, and cleans the primer seat. No. 21 opens the breechblock, and cleans and oils it when necessary. He assists No. 1 with the crank when there is difficulty in closing the breech. If the projectile fails to seat at the first trial, he assists on the rammer.</p> <p><i>Note</i>—(The battery commander may require Nos. 1 and 2 to assist in ramming the powder, and the chief of breech to assist in ramming the projectile.)</p>	<p>The chief of breech supervises unloading. Nos. 1 and 2 assist in withdrawing the dummy powder charge and the dummy projectile. No. 3 removes the primer. No. 21 opens breech and assists in withdrawing the dummy projectile.</p>

12-INCH GUN DRILL (DISAPPEARING CARRIAGE)

Details.	At command <i>DETAILS,</i> <i>POSTS.</i>	At command <i>EXAMINE GUN.</i>
Rammer detail, Nos. 4, 22 and 23.	<p>Nos. 4 and 22 procure the rammer and place it on the hooks near the rail, head toward the hoist.</p> <p>No. 4 takes post about two yards from the head of the rammer, within reach of the staff, facing the piece.</p> <p>No. 22 takes post four yards to the left of No. 4, facing the piece.</p> <p>No. 23 procures the extractor for the dummy projectile and places it near the rammer, takes post four yards to the right of No. 4, facing the piece.</p>	<p>No. 4 assists the breech detail in cleaning when necessary.</p> <p>No. 22 removes the muzzle cover, hands it to No. 8, who places it at the designated place.</p> <p>No. 23 assists No. 9 in filling the recoil cylinders, passing up the oil measure and the funnel when needed.</p>
Elevating detail, Nos. 5 and 6.	Nos. 5 and 6 take posts at the elevating handwheel on the same side as the range setter, facing the piece.	Nos. 5 and 6 assist the range setter in examining the elevating and retracting mechanism, and in cleaning and oiling the gears.
Traversing detail, Nos. 7 and 8.	Nos. 7 and 8 procure the traversing cranks, place one of them on the shaft, on the same side as the gun pointer, and take posts at the crank facing to the rear.	Nos. 7 and 8 remove the drip pans, assist in testing the traversing mechanism. No. 8 receives the muzzle cover from No. 23 and places it at a designated place.
Tripping detail, Nos. 9 and 10.	<p>No. 9 procures a wrench for filling plugs, a measure containing hydrolene oil, and a funnel, and goes to the right tripping lever.</p> <p>No. 10 procures a wrench for filling plugs and goes to the left tripping lever.</p>	<p>Nos. 9 and 10 mount on the chassis, each carrying a wrench, and remove the filling plugs from the recoil cylinders. If oil is needed, No. 9 calls on No. 23 for the funnel and measure, and pours oil into the right cylinder slowly. No. 10 watches the oil hole in the left cylinder. When both cylinders are full, No. 9 hands the funnel and measure back to No. 23 and notifies the gun commander that the cylinders are ready for inspection. After the inspection, Nos. 9 and 10 screw the plugs well home, and take posts facing the piece by the platform railing, No. 9 three yards to the right of No. 4, and No. 10 three yards to the left of No. 4.</p>
Truck detail, Nos. 11 and 12.	Nos. 11 and 12 bring out the shot trucks to be used and take posts at the handles of one of the trucks; No. 11 on the right and No. 12 on the left.	Nos. 11 and 12 examine the trucks, and clean and oil them when necessary. They then turn them over to the hoist detail for loading. When the first truck is loaded, they push it out to some convenient position in rear of the breech.
Powder serving detail, Nos. 13, 14, 15, and 16.	Nos. 13, 14, 15, and 16 bring out the powder trays to be used and turn them over to the ammunition detachment. They take posts opposite the first tray loaded, Nos. 13 and 15 on the right and Nos. 14 and 16 on the left, Nos. 13 and 14 in rear.	Nos. 13, 14, 15, and 16 see that the powder sections are arranged on the trays in the order in which they are to be inserted.
Hoist detail, Nos. 17, 18, and 19. No. 17 is chief of detail unless a N. C. officer is assigned in charge.	Nos. 17, 18, and 19 take posts at the delivery table.	Nos. 17, 18, and 19 examine and clean the delivery table and the projectiles on it. They examine the automatic stop. They load the trucks turned over to them by the truck detail.

At command <i>LOAD</i> .	At command <i>CEASE FIRING</i> . (When dummy ammunition is used.)
<p>The truck is brought up to the face of the breech, and the projectile pushed carefully off the truck until the base of the projectile is just inside the powder chamber. The truck is then withdrawn and run off to one side. Nos. 1, 2, 4, 9, 10, 21, 22, and 23 then man the rammer as near the outer end as possible, and at the command <i>HOME RAM</i> by the chief of breech, they rush the projectile forward hard into its seat, increasing the speed of the rush so that the projectile will have its fastest movement when it comes up hard in its seat. The rammer detail pushes the powder off the powder tray and into the powder chamber to such a distance that the breechblock will give the powder charge a final push into the chamber in closing.</p> <p>NOTE.—If considered desirable by the battery commander, he may require the chief of breech to assist in ramming the projectile, and Nos. 1, 2, 9, and 10 to assist in ramming the powder.</p>	<p>No. 4 brings up the extractor and pulls the dummy powder sections back on to the tray. He hooks the extractor into the dummy projectile and assists in withdrawing it. Nos. 22 and 23 assist in withdrawing the dummy projectile.</p>
<p>Nos. 5 and 6 elevate or depress the piece under direction of the range setter.</p>	<p>No duties.</p>
<p>Nos. 7 and 8 traverse the piece under direction of the gun pointer. They halt when the piece is fired and resume traversing as soon as the truck is withdrawn from the breech.</p>	<p>No duties.</p>
<p>Nos. 9 and 10 assist in ramming the projectile. As soon as the projectile is seated they quit the rammer and run to the tripping levers. At the command <i>IN BATTERY</i> they seize the tripping levers and at the command <i>TRIP</i> raise them quickly to the stops, hold them for an instant, then let go, and when the gun is in battery run back to their posts at the rammer, where they stand by for the next shot. If firing by electricity, No. 9 (or No. 10) closes the safety switch as soon as the gun is in battery.</p> <p>(NOTE: If considered desirable by the battery commander, Nos. 9 and 10 may assist in ramming the powder.)</p>	<p>No duties unless the dummy projectile sticks, in which case they assist in starting it from its seat.</p>
<p>Nos. 11 and 12 run out a loaded shot truck, No. 12 adjusting the truck to the proper height in accordance with the position of the piece upon recoil. The truck is run forward so that the tray enters the breech recess squarely. As the truck brings up against the face of the breech No. 12 sets the brake. As soon as the projectile is pushed off the truck, Nos. 11 and 12 run the truck back to the hoist and turn it over to the hoist detail. They then take posts behind a loaded truck and stand by for the next shot.</p>	<p>Nos. 11 and 12 push a truck into position at the breech to receive the dummy projectile, and then return truck to the loading position.</p>
<p>As soon as the rammer has been withdrawn after seating the projectile, the nose of the powder tray is inserted in the breech by Nos. 13, 14, 15, and 16, and the rammer detail, in one motion, pushes carefully the entire powder charge off the tray to such a distance that the breechblock will give the powder charge a final push into the chamber in closing. The tray is then removed and the breech closed.</p>	<p>Nos. 13, 14, 15, and 16 bring up an empty powder tray to receive the dummy powder sections and return the loaded tray to the loading position.</p>
<p>Nos. 17, 18, and 19 receive the empty truck after each shot, load it, and run it out conveniently for Nos. 11 and 12.</p>	<p>No duties.</p>

12-INCH GUN DRILL (DISAPPEARING CARRIAGE)

Details.	At command <i>DETAILS,</i> <i>POSTS.</i>	At command <i>EXAMINE</i> <i>GUN.</i>
Spongedetail, No. 20.	No. 20 procures the chamber sponge and a vessel containing hydrolene oil, places them on the opposite side of the emplacement from the rammer, and takes post near the chamber sponge, facing the gun. (If there is to be no firing, the vessel may be empty.)	No. 20 brings up the chamber sponge when called for and assists in sponging the chamber.

At command <i>LOAD</i> .	At command <i>CEASE FIRING</i> . (When dummy ammunition is used.)
<p>No. 20 dips the chamber sponge in the hydrolene oil and allows the excess oil to run off as soon as the breechblock is opened after each shot, assisted by the breech detail, he sponges the chamber as quickly as practicable.</p>	<p>No duties.</p>

notches on the chassis and the gun is forced into battery. However, battery commanders will observe such defects at daily drill and will have the same remedied before practice or action.

145. *To retract the gun.*—Assuming that the gun is in battery, that the clutch is out, and that the cables are wound on the retraction drums, to retract the gun by hand the gun commander will command (1) *FROM BATTERY*, (2) *HEAVE*, (3) *HALT*. At the first command No. 7 releases the retaining pawl and turns the speed crank to permit the pulling out of the cables. Nos. 1 and 2 pull out the cables to their full length and pass the ends to Nos. 21 and 4, who will have mounted on the chassis. Nos. 21 and 4 pass the cables to Nos. 9 and 10, who will have mounted the gun levers, and who will place the ends of the cables on the hooks. No. 7 will then throw on the retaining pawl and will turn the speed crank to take up all slack, and No. 8 will push in the clutch, Nos. 21 and 4 watching the cables to see that they take the grooves of the drums. As soon as the slack has been taken up Nos. 4, 21, 9, and 10 return to the loading platform, and Nos. 7 and 8 put on the retraction cranks.

The gun section is divided into two reliefs by the gun commander. The first relief takes post at the retraction cranks, and at the second command start to retract the gun. The reliefs alternate as directed by the gun commander. As soon as the crosshead teeth engage their pawls the retraction shaft retaining pawl is thrown off, and remains off until the cables have been unhooked from the gun levers.

When the gun has reached the loading position, the gun commander commands *HALT*. At this command Nos. 7 and 8 remove the retraction cranks. No. 7, using the speed crank, lets out enough slack to enable Nos. 1 and 2 to unhook the cables. After the unhooking, No. 7 takes up all slack with the speed crank and then throws the retaining pawl on. No. 8 then pulls out the clutch.

146. For retraction by power the above drill is modified as follows: Assuming the idler to be out of gear, after the cables have been hooked to the gun levers and the slack has been taken up by No. 7 and the clutch thrown in by No. 8, at the command *HEAVE* by the gun commander, No. 8 throws the idler in gear. As soon as this is done the range setter closes the main switch of the controller cabinet and moves the arm so as to turn on the power. The movements at the command *HALT* are the same as those prescribed for hand retraction, except that the range setter pulls the main switch of the controller cabinet, after which No. 8 throws the idler out of gear. The cables are then unhooked, and the slack taken up as prescribed for hand retraction.

147. On carriages equipped with friction brakes on the retraction crank shaft it is not necessary to unhook the cables from the gun levers. The time consumed in pulling out and hooking the cables is thereby saved. On carriages so equipped the cables need not be unhooked, and the drill may be modified accordingly.

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